AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A second-order bandpass Infinite Impulse Response (IIR) type digital filter, comprising:

~~wherein assuming that~~ a sampling frequency ~~is~~ set to six times as large as a central frequency of a passing frequency band~~,~~;

a first-order input feedback coefficient b1 ~~is~~ set at $-1 + 2^{-n}$; and

a second-order input feedback coefficient b2 ~~is~~ set at $1 - 2^{-(n-1)}$ ~~(n:~~, where n is an odd number of 3 or larger~~)~~,

wherein a zero-order output coefficient a_0 is set at 2^{-n} ($a0 = 2^{-n}$)and a coefficient a2 of a second-order output is set at -2^{-n} ($a2 = -2^{-n}$).

Claim 2 (canceled).

3. (currently amended) ~~A~~ The second-order bandpass IIR digital filter according to claim 1, wherein the second-order output is subtracted from the zero-order output and ~~a~~ the subtraction result is multiplied by 2^{-n}.

4. (currently amended) A reference signal canceling apparatus comprising:

a filter for extracting a reference signal contained in ~~an~~ a frequency modulation (FM) detected signal; and

a subtracter for subtracting an output from the filter from said FM detected signal,

wherein said filter is constructed as a second-order bandpass Infinite Impulse Response (IIR) type digital filter, and ~~assuming that~~when a sampling frequency is six times as large as a central frequency of a passing frequency band, a first-order input feedback coefficient b1 is set at $-1 + 2^{-n}$ and a second-order input feedback coefficient b2 is set at $1 - 2^{-(n-1)}$ ~~(n:~~, where n is an odd number of 3 or larger~~)~~.

5. (currently amended) A method of canceling a reference signal~~In~~ in a reference signal canceling apparatus ~~comprising:~~having a filter for extracting a reference signal contained in ~~an~~ a frequency modulation (FM) detected signal~~;~~ and a subtracter for subtracting an output from the filter from said FM detected signal, ~~a method of canceling a reference signal,~~said method comprising ~~the steps of~~:

constructing said filter as a second-order bandpass Infinite Impulse Response (IIR) type digital filter~~, and;~~

~~assuming that~~setting a sampling frequency ~~is~~ at six times as large as a central frequency of a passing frequency band~~,~~;

setting a first-order input feedback coefficient b1 at $-1 + 2^{-n}$; and

setting a second-order input feedback coefficient b2 ~~is set~~ at $1 - 2^{-(n-1)}$ ~~(n:~~, where n is an odd number of 3 or larger~~)~~.